

# DIMOCK

TABLE 2 - 12/29/11

**SAMPLE ANALYTICAL REQUIREMENTS SUMMARY  
DIMOCK RESIDENTIAL GROUNDWATER SITE  
DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA**

Analytical parameter and Method	Matrix	Sample Preservation	Holding Time	Sample Container(s)
Alcohols: Ethanol, methanol, 1-propanol, 1-butanol, 2-butanol (8015DF)	drinking water	ice, 6°C	7 days	Three 40-ml glass vials (fill to capacity with no head space)
Anions: Chloride, Bromide, Fluoride, Nitrate/Nitrate as N, Orthophosphorus as P, Sulfate as SO <sub>4</sub> (300.0)	drinking water	ice, 6°C	28 days	One 500-ml HDPE
Bacteria (Fecal & total coliform, HPC)	drinking water	ice, 4°C (0.008% Na2S2O3 if residual Cl <sup>-</sup> present)	6 hours	125 ml Pre-sterilized polypropylene
d13C and d2H of methane (Isotech)	drinking water	ice, 4°C, bubble pill in sample container	as soon as possible	as soon as possible
Complete compositional analysis of headspace gas (Isotech)	drinking water	ice, 4°C, bubble pill in sample container	6 months	one 1-L poly/TBD*
Diss. gases methane, ethane, ethene (Isotech)	drinking water	ice, 4°C, bubble pill in sample container	6 months	one 1-L poly/TBD*
Dissolved Gases, Methane, Ethane, & Ethene (ISK-175)	drinking water	pH2 with HCl and cool with ice, 4°C	7 days	One 40-ml glass vial
Ethylene Glycol (8015M)	drinking water	ice, 4°C	7 days	Three 40-ml glass vials (fill to capacity with no head space)
DRO (8105M)	drinking water	ice, 4°C	7 days extract; 40 days analysis	Two 1-liter amber glass jars with teflon-lined lids
GRO (8105M)	drinking water	pH2 with HNO <sub>3</sub> and cool with ice, 4°C	14 days	Three 40-ml glass vials (fill to capacity with no head space)
Gamma Spec (Ra-222, Ra-214, K-40, Ra-226, Ra-228, Th-222, Th-234, U-235, U-238) (901.1)	drinking water	pH2 with HNO <sub>3</sub> and cool with ice, 4°C	6 months	One 1-liter HDPE
Glycols incl. 2-Butoxyethanol (8316)	drinking water	ice, 6°C	7 days	Three 40-ml glass vials (fill to capacity with no head space)
Gross Alpha/Beta (900.0)	drinking water	pH2 with HNO <sub>3</sub> and cool with ice, 4°C	6 months	One 1-liter HDPE
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Tl, U, V, K, Hg, B (200.8/245.1)	drinking water	pH2 with HNO <sub>3</sub> and cool with ice, 4°C	6 months	One 1-liter HDPE
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Tl, U, V, K, Hg, B (200.8/245.1) (filtered)	drinking water	pH2 with HNO <sub>3</sub> and cool with ice, 4°C	6 months	One 1-liter HDPE
Methylene Blue Active Substances (MBAS) (SM 5540C)	drinking water	ice, 4°C	48 hours	One 500-ml HDPE
Nitrate/Nitrite (Total N) (353.2)	drinking water	pH2, H <sub>2</sub> SO <sub>4</sub> , and cool with ice, 4°C	7 days	Two 1-liter amber glass jars with teflon-kned lids
Oil & Grease (HEM) (1664A)	drinking water	pH2, H <sub>2</sub> SO <sub>4</sub> , and cool with ice, 4°C	28 days	One 1-liter amber glass jars with teflon-kned lids
Phosphorus, Total (365.1)	drinking water	ice, 6°C	28 days	One 400-ml HDPE
Ra-226 (903.1)	drinking water	pH2 with HNO <sub>3</sub> and cool with ice, 4°C	6 months	One 1-liter HDPE
Ra-228 (904.0)	drinking water	pH2 with HNO <sub>3</sub> and cool with ice, 4°C	6 months	One 1-liter HDPE
Semi-Volatiles (TCL plus TICs) (OLC03.2)	drinking water	ice, 6°C	7 days	Two 1-liter amber glass jars with teflon-lined lids
Solids, Total Dissolved (TDS) (SM 2540C)	drinking water	ice, 6°C	7 days	One 500-ml HDPE
Solids, Total Suspended (TSS) (SM 2540D)	drinking water	ice, 6°C	7 days	One 500-ml HDPE
Stable Isotopes of water (D,H) (Isotech)	drinking water	ice, 4°C	as soon as possible	as soon as possible
2-Methoxyethanol (8015B)	drinking water	ice, 6°C	7 days	Two 1-liter amber glass jars with teflon-lined lids
1-methylnaphthalene (8270 or equivalent)	drinking water	ice, 6°C	7 days	Two 1-liter amber glass jars with teflon-lined lids
Volatiles (TCL plus TICs) (CLP Trace - 0.5 ug/l O <sub>2</sub> ) (OLC03.2) incl. Acrylonitrile	drinking water	2 drops of 1:1 HCl pH2, ice, 6°C	2 days	5x 40-ml glass vials w/ Teflon lined cap (no head space)
Alpha Spec Th-222, Th-228, Th-230 (10% Mixture) (1516)	drinking water	5 mL HCl and cool with ice, 4°C	as soon as possible	One 1-liter HDPE
Alpha Spec U-234, U-235, U-236, U-238 (EPA 900.0)	drinking water	pH2 with HCl and cool with ice, 4°C	6 months?	One 1-liter HDPE
Ra-222 (ASTM D7027/5A)	drinking water	ice, 4°C	96 hours	as soon as possible

Note: Analyses will be combined into sample bottles as applicable/appropriate based on determination by lab(s).

KEY:

\*C = degrees Celsius

mi = milliliters

C14 = Carbon 14 Isotope

Na2S2O3 = Sodium Thiosulfate

CLP = Contract Lab Program

pH = potential Hydrogen

DL = delta of carbon-13

QL = Quantification Limit

D2H = delta of deuterium

Se = Septum

H2SO4 = Sulfuric Acid

TCL = Target Compound list

TICs = Tentatively Identified Compounds

ug/l = micrograms per liter

ml = milliliters

HDPE = High density polyethylene

ug/l = micrograms per liter

HPC = Heterotrophic Plate Count

\* all parameters to be analyzed by Isotech can be combined into one 1-L poly bottle with septum lid

**TABLE 1 - 12/30/11**  
**FIELD AND QC SAMPLING SUMMARY**  
**DIMOCK RESIDENTIAL GROUNDWATER SITE**  
**DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA**

Parameter/Method	Matrix	Field Samples	Blnd	QC Sample Summary					Total Field and QA/QC Analyses (not including MS/MSD) <sup>1</sup>
				Dup.	Trip <sup>2</sup> Blanks	Rinsate <sup>3</sup> Blanks	Field <sup>4</sup> Blanks	MS/MSD	
Alcohols: Ethanol, methanol, 1-propanol, 1-butanol, 2-butanol (8015D)	drinking water	60	0	6	0	0	5	3	71
Amons, Chloride, Bromide, Fluoride, Nitrate/Nitrite as N, Orthophosphorus as P, Sulfate as SO4 (300.0)	drinking water	60	0	6	0	0	5	0	71
Bacteria (fecal & total coliform, HPC)	drinking water	60	0	6	0	0	5	0	71
d <sup>13</sup> C and d <sup>4</sup> H of methane (isotech)	drinking water	10	0	0	0	0	0	0	10
Complete compositional analysis of headspace gas (isotech)	drinking water	10	0	0	0	0	0	0	10
Diss. gases methane, ethane, ethene (isotech)	drinking water	10	0	0	0	0	0	0	10
Dissolved Gases, Methane, Ethane, & Ethene (IRSE-175)	drinking water	60	0	6	0	0	5	0	71
Ethylene Glycol (8015M)	drinking water	60	0	6	0	0	5	0	71
DRD (8015M)	drinking water	60	0	6	0	0	5	0	71
GRO (8015M)	drinking water	60	0	6	0	0	5	0	71
Gamma Spec (Bi-212, Bi-214, K-40, Ra-226, Rn-228, Th-222, Th-234, U-234, U-235, U-238) [903.1]	drinking water	60	0	6	0	0	5	0	71
Glycols Incl. 2-Butoxyethanol (8316)	drinking water	60	0	6	0	0	5	0	71
Gross Alpha/Beta (900.0)	drinking water	60	0	6	0	0	5	0	71
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Ti, U, V, K, Hg, B (100.8/245.1)	drinking water	60	0	6	0	0	5	6	71
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Ti, U, V, K, Hg, B (100.8/245.1)	filtered drinking water	60	0	6	0	0	5	6	71
Methylene Blue Active Substances (MBAbs) (SM 5540C)	drinking water	60	0	6	0	0	5	0	71
Nitrate/Nitrite (353.2)	drinking water	60	0	6	0	0	5	0	71
Oil & Grease (NEM) (1664A)	drinking water	60	0	6	0	0	5	0	71
Phosphorus, Total (365.3)	drinking water	60	0	6	0	0	5	0	71
Ra-226 (903.1)	drinking water	60	0	6	0	0	5	0	71
Ra-228 (904.0)	drinking water	60	0	6	0	0	5	0	71
Semi-Volatiles (TCL plus THCs) (CLP Trace plus THCs) (OLC03.2)	drinking water	60	0	6	0	0	5	3	71
Solids, Total Dissolved (TDS) (2540C)	drinking water	60	0	6	0	0	5	0	71
Solids, Total Suspended (TSS) (2540D)	drinking water	60	0	6	0	0	5	0	71
Stable Isotopes of water (D,H) (isotech)	drinking water	10	0	0	0	0	0	0	10
2-Methoxyethanol (8015B)	drinking water	60	0	6	0	0	5	0	71
1-methylpropylene (8270 or equivalent)	drinking water	60	0	6	0	0	5	0	71
Volatiles Incl. Acrylonitrile (TCL plus TICs) (CLP Trace - 0.5 ug/L ORL) (OLC03.2J)	drinking water	60	0	6	1 per cooler	0	5	3	71 + Trip Blanks for Coolers
Alpha Spec (Th-232, Th-228, Th-230) (EPA Method 9110)	drinking water	60	0	6	0	0	5	0	71
Alpha Spec (U-234, U-235, U-236, U-238) (EPA 908.0)	drinking water	60	0	6	0	0	5	0	71
Rn-222 (SRN 7500RN)	drinking water	60	0	6	2	0	5	0	71

Notes:

1. This QA sample will be an aqueous matrix.
2. Sample to be collected only if non-dedicated sampling equipment is used.
3. Estimate based on 5 sampling days.

Key:

Blnd = Background

QA/QC = Quality assurance/quality control

MS/MSD = Matrix Spike/Mass/Isotope Dilution

Sr = Strontium

Dup. = Duplicate